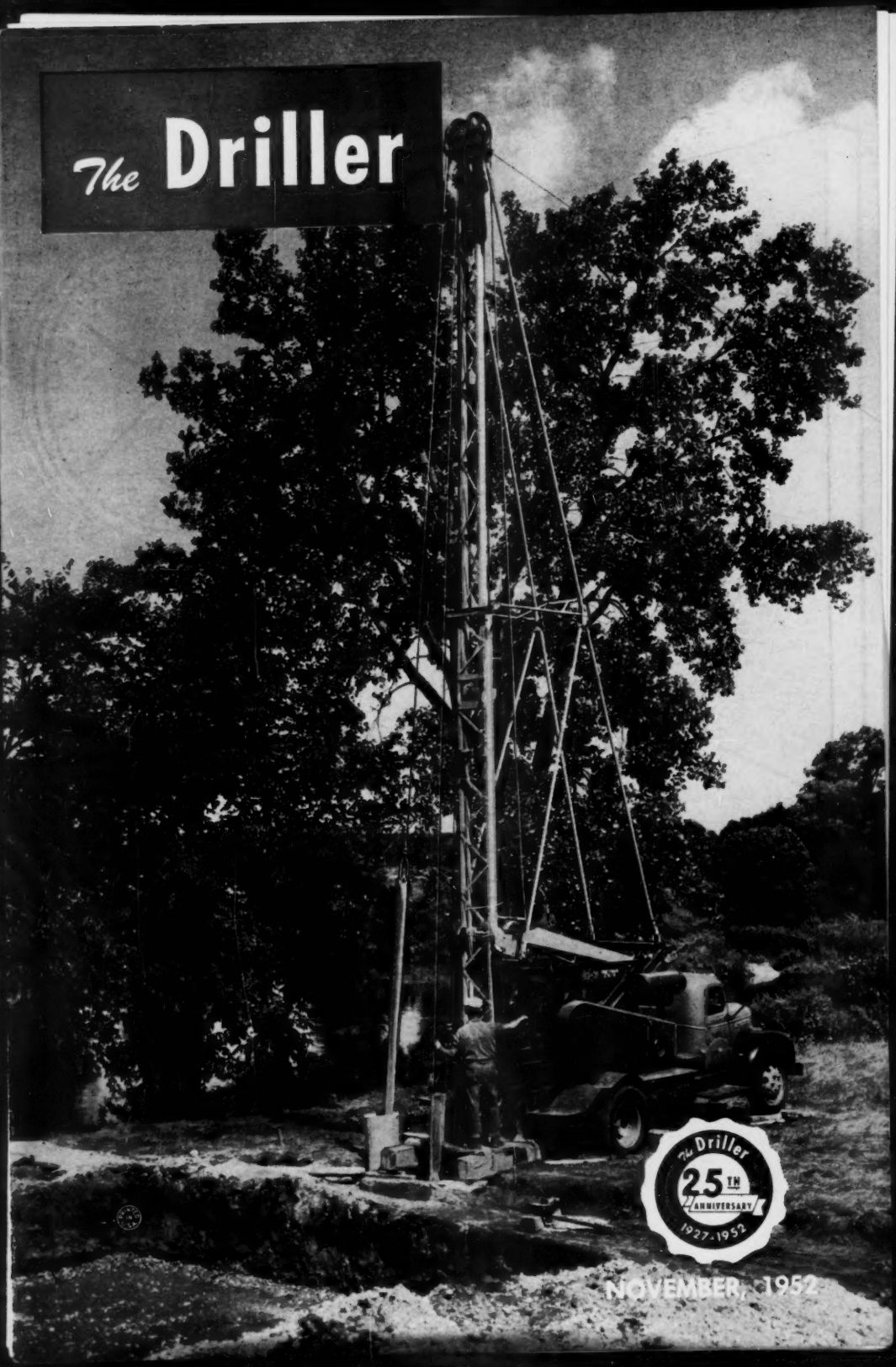
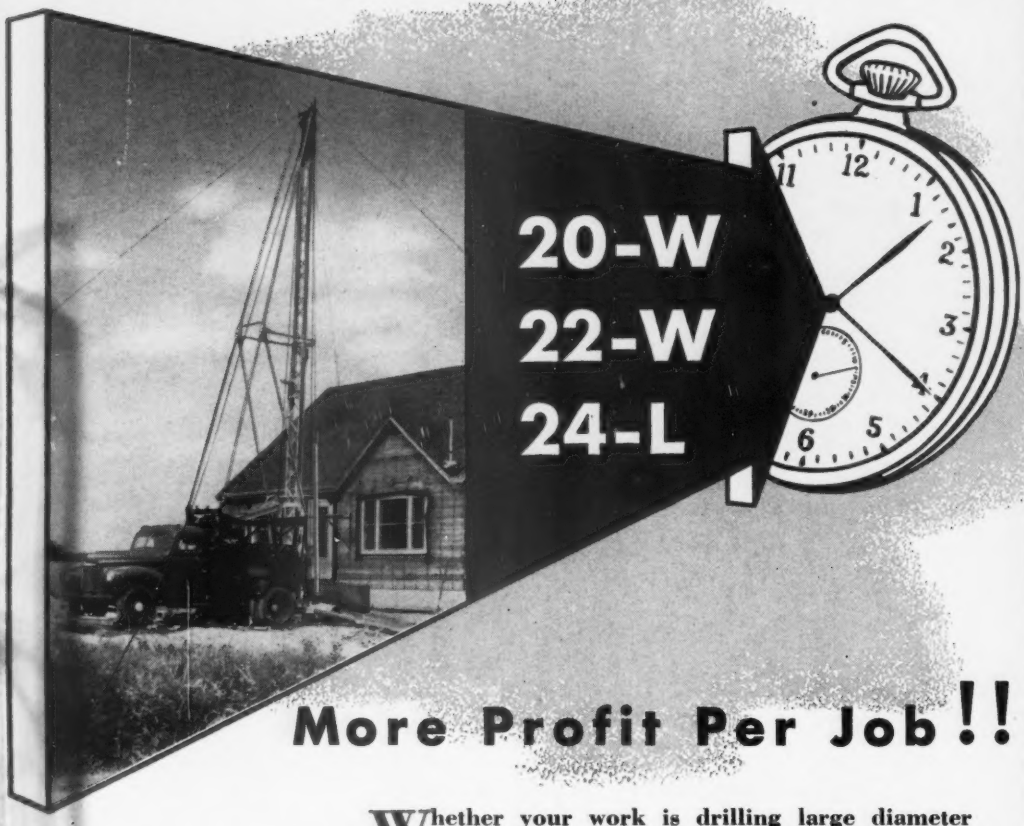
The Driller



NOVEMBER, 1952

More Footage Per Hour . . .



More Profit Per Job !!

Whether your work is drilling large diameter industrial wells, or small residential jobs, you'll find Bucyrus-Erie rigs can handle it in exceptional time — bringing real well drilling profits.

Their accurately timed drilling action produces more effective blows per minute, allows the tools to strike with maximum force. Equally important, in the profit-power story of greater drilling footage, is the derrick-head rubber shock absorber which gives the tools extra reach, then instantly snaps them back the moment the drilling blow is struck.

Ask any owner of models 20-W, 22-W or 24-L, and get "first hand" proof of the versatility and speed that make Bucyrus-Erie drills the biggest profit-makers on the market today.

192W52C

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Since we saw you last year at the Exposition Jacuzzi has developed two great new pumps . . . the Multi-Prime and the Jacuzzi "4", pictured at left. We'll be glad to send you complete information of these two pumps if you'll drop us a card.

Hope to see you at the Exposition in Biloxi, November 19!

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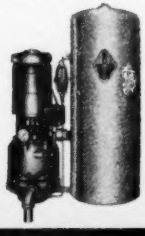

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Self-priming shallow well water system. Gives 30% more pressure, 20% more water for no extra H.P.

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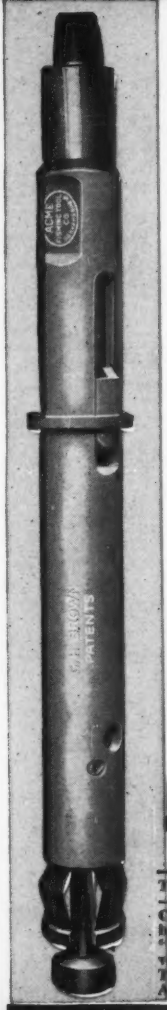

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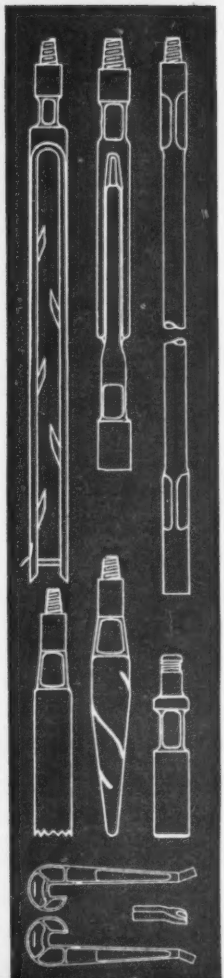

Unique 3-Cutter Design Big Advantage Over Obsolete 2-Cutter Types

Use Acme's Underreamer to increase hole size below casing — so to lower casing and shut off water or cave-in. Reams faster. Avoids key-seating. Rounds out flat hole.

Acme's exclusive-feature 3-Cutter Reamer assures advantages over common 2-cutter types. Unique construction assures solid backing while reaming; cone seats firmly around cutters, inside; cutting gauge constantly held (except for normal cutter wear). Cone also keeps out dirt.

Note cutter views (left). Collapsed for "free and easy" in-and-out of hole. Expanded for underreaming operation. No jarring into casing; thus no broken cutters.

Body of 1-SOLID forging — no sub to unscrew. Hard surfaced cutting edges. All parts of PREMIUM-grade steel; correctly heat-treated — for maximum field service.

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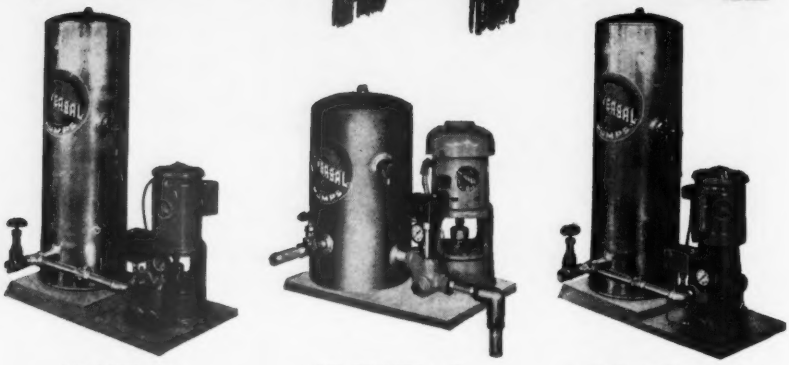

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The Driller

THE MONTHLY MAGAZINE
FOR WATER WELL DRILLERS
Founded 1927

Vol. 26 — No. 11

November, 1952

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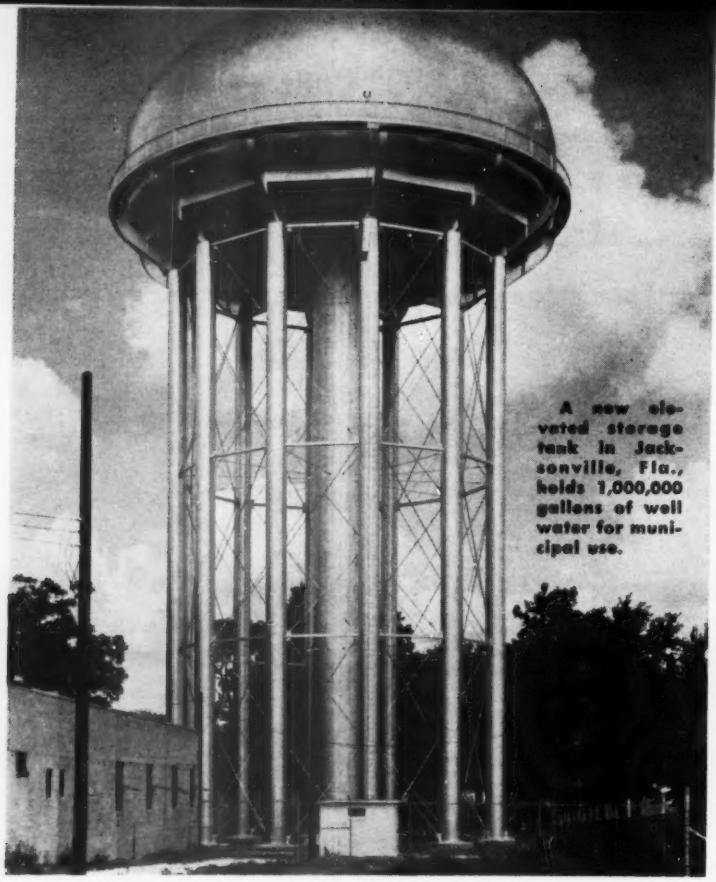


A new elevated storage tank in Jacksonville, Fla., holds 1,000,000 gallons of well water for municipal use.

Florida Uses Water from a Wealth of Wells

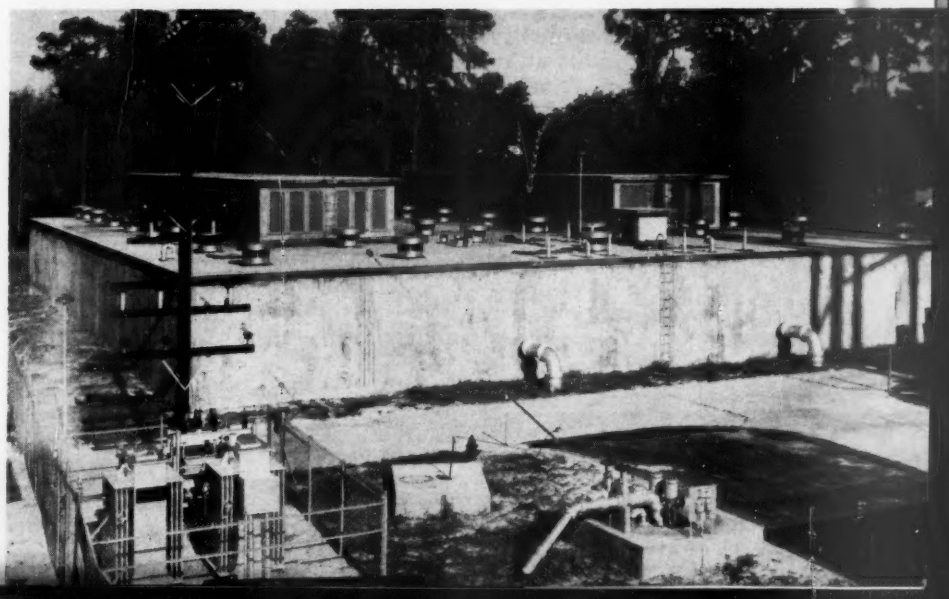
By C. E. Wright

Water well drilling is a big industry in Florida where, in spite of abundant quantities of ground water available from lakes, rivers and springs, thousands of water wells are being drilled each year. In this article the author points out reasons for this fact and discusses the over-all water picture in the peninsula state.

THE state of Florida, which was host to the annual convention of the National Water Well Association in 1951, derives most of its public and private water supplies from wells, as some of the visitors at that convention may have learned. This is true notwithstanding the fact that Florida has a surface water area of 3,805 square miles, or approximately 6.5% of the entire state, consisting of about 30,000 lakes, more than 100 rivers and the largest number of fresh water springs of any section of the United States.

Although its surface water area is the second largest among the 48 states, it also has one of the largest subterranean water areas in the country, and most of its public and private water supplies are drawn from underground rather than surface sources. Of the 357 public water systems in the State, 325 derive their water entirely from wells and the remainder from surface water. Miami and Jacksonville are two of the largest cities in the country to be wholly supplied by well water. Thus well drilling is a thriving industry in Florida.

A ground storage reservoir with aerators built recently in Jacksonville, Fla., has a capacity of 1,250,000 gallons. There are now 44 wells supplying the city. In a recent expansion program the city's pumping capacity was increased from 68,000,000 to 125,000,000 gpd and ground storage capacity increased from 11,500,000 to 19,000,000 gallons.

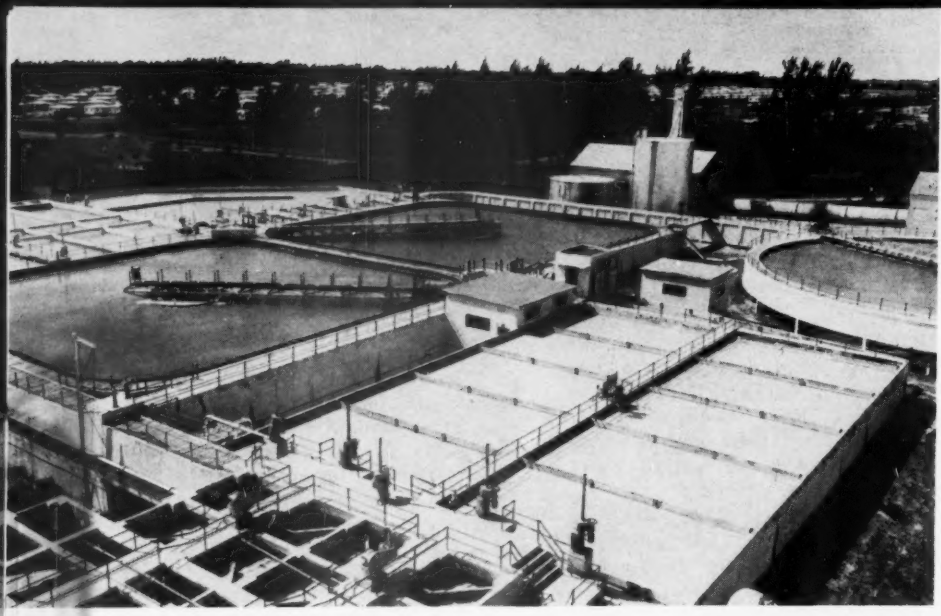


Formations Explained

Florida's large water supply both above ground and underground is due to its limestone formation. Colonel A. G. Matthews, chief engineer of the State Division of Water Supply and Research, thus explains the geological characteristics and their relation to water supply:

"The principal limestone stratum underlying peninsula Florida lies generally in an elongated dome, with its major axis roughly north and south. Various additional layers of limerock and lime conglomerates were deposited around the sides of this dome at successively lower levels of the sea. The rains falling on these exposed layers percolate through them to furnish important quantities of water, and it is believed probable that most of the underground water of Florida originates in this way.

"The varying permeabilities of the different rock layers account for



The water filtration plant at Hialeah is shown here. To get away from the danger of salt water intrusion in wells near the ocean, new wells and plants are being built farther inland.

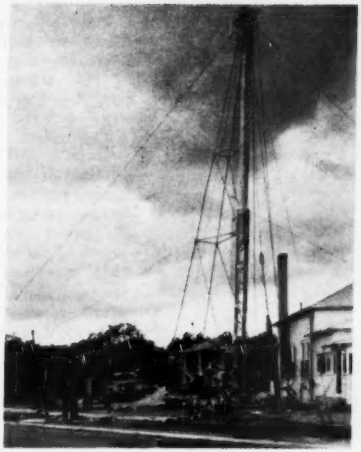
the fact that some surface areas are supplied by flowing wells and others by pumping, while still others are unable to find an underground water supply. These underground waters are utilized by 92% of the municipal supply systems of the State and are also the source of many large surface and underwater springs. The discharges from the surface springs which have been measured indicate that these springs utilize all the rain falling on 1,600 square miles.

"The amount of water discharged by the subaqueous springs has not been determined, nor is the total useful amount of water contained in the rocks known. It must be pointed out, however, that not only do these springs use important quantities of water, but, as they continue to flow, their waters keep on dissolving larger and larger channels and paths of percolation through the limerock. It is thought possible, therefore, that the flows from these springs will increase with the passage of time. The rate of this increase is a matter of speculation, of course, but the probability should be taken into consideration in planning future water supply systems."

Despite its large potential water supply, Florida is not without its water problems. Much of the difficulty comes from alternating periods of excessive rainfall and drought. The disastrous floods that have occurred during hurricane seasons, particularly in the Lake Okeechobee area, have led to the adoption of a 10-year program of flood control work in central and southern Florida to cost $208,000,000, on which the first stages are well along toward completion.

Fast Growing Population

In prolonged dry periods the draw-down from wells near the ocean has resulted in salt water intrusion through the porous oolite shelves that extend down into the sea. This has happened at Miami, resulting in the sinking of wells farther removed from the seacoast.



Layne Atlantic, one of the large drilling firms in Florida, is shown putting down a well near Orlando, Fla. Depth at time of picture was 473 feet with a trailer mounted 36-L.

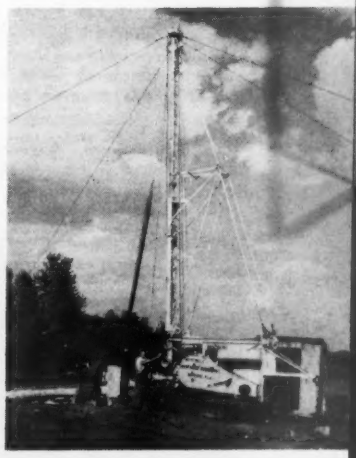
Florida's water problem is accentuated by the fact that the largest influx of tourists occurs during the driest months of the year, the later winter months.

Major expansions of Florida water systems have been under way during the past year or two to keep pace with the fastest population growth of any area east of the Mississippi River and a constantly expanding tourist flow. Florida's population gained about 46% in the 1940-50 decade, while its out-of-state visitors are variously estimated at from four to five million annually. Municipal water departments are tending toward larger wells, many of 30-in. diameter, and deeper drilling, ranging from 75 to 150-ft. depths on the east coast to 300 to 1,100-ft. depths on the lower west coast.

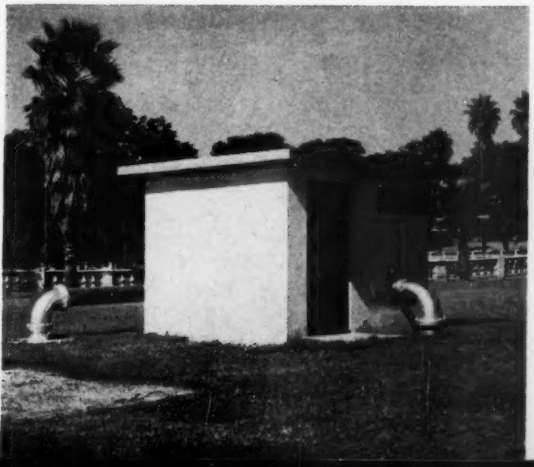
Although no accurate figures are available on the number of wells that are being dug currently in Florida, informed estimates from reliable sources in close touch with the situation indicate that the number runs into the thousands. The Florida State Board of Health keeps a check on wells for public water supply, but these numerically are greatly in a minority, as there have been a large number ranging from 1¼ inches and upward in diameter for

(Continued on page 26)

In addition to large industrial wells, there are many small ones in Florida. Gardenhide Bros., Bartow, Fla., are shown putting down well to 266 feet near Lakeland, with their 24-L.



Typical of the masonry pump houses built over well pumps is this one in Jacksonville.



Peasant women fill their earthen jugs at a 4-in. well in the village of Safayna, Egypt.

During first tests of a well the irrigation ditch, left below, begins to fill next to the parched land. Picture on the right shows the land, planted with rice, just 15 days later.

Wells Along

Above: **Native labor is shown with the manually operated type of drilling arrangement used. This unit, on a barge, is at work on one of the firms de-watering projects.**

Aram Agopian, a recent visitor to the United States, is shown with one of the guaranteed irrigation wells his company drills.

IN the Egyptian desert country, along the Nile River, this drilling company of Hagop Agopian and his two sons Aram and Nernes guarantee to their customers, not only that water will be reached, but the

Fourth from left, in white coat, is the elder Agopian, who although he now leaves most of the work to his sons, gives the final check to a 10-in. well, delivering 3,000 gpm in Lower Egypt.

the Nile

Hagop Agopian is shown, second from left, during testing of an 8-in. well that was a record producer.

amount and duration of the flow. Much of the work is still done with native labor. Sometimes the methods are crude but the company is progressive and is steadily modernizing equipment and methods.

Large diameter casing is kept in the company yard in Cairo. Rigs, tools and other equipment are kept in another yard. That's Aram in the center.

On a visit to the United States recently, Aram Agopian, drilling contractor from Cairo, Egypt, checked drilling operations of one of Myron Acker's rigs near Hales Corners, Wis. Inset shows the Egyptian company on a de-watering, for a dam, project along the Nile River.

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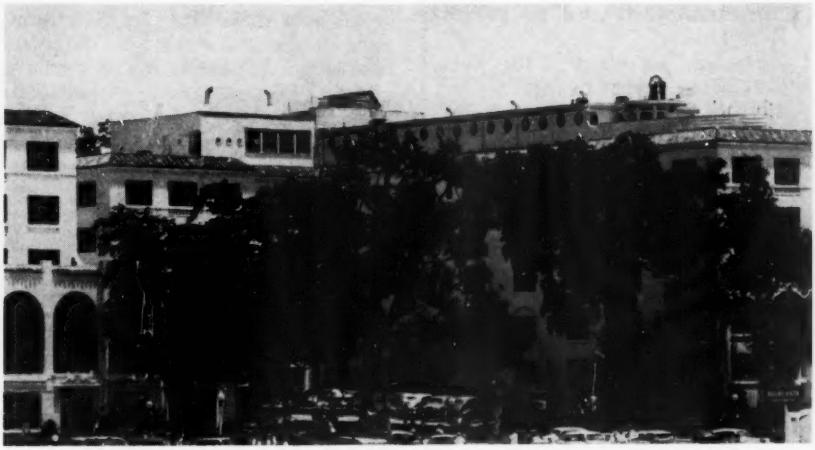
NEWS of the month

'52' NWWA Convention in Biloxi, Miss., Nov. 19-22



Pictured here is the Buena Vista Hotel, headquarters for the National convention. Notice the "Ship's Deck" on the roof.

The Buena Vista Hotel in Biloxi, Miss., and the Mississippi Water Well Contractors Assoc., Inc., will host the 1952 National Water Well Exposition Nov. 19-22. Contractors and drillers from every part of the country as well as a number of prominent foreign contractors are expected to attend.

Displays, meetings and entertainment will all be accommodated on the same location which, according to NWWA Newsletter, is the best site ever had for the show. Both indoor and outdoor displays are being planned. The original indoor space, for 52 booths, has been completely taken up. Additional display space is being sought.

Included in the technical sessions being planned are: "Status of the Government Controls Program" by Gerald E. Arnold, Director, Water Resources Div. NPA, Washington, D.C.; "Selling the Whole Well Job" by Paul Weaver, Technical Assistant, Gulf Oil Corp., Houston, Tex.; "We Must Sell Adequate Capacity" by Herbert C. Angster, Exec. Sec., National Assoc. of Domestic and Farm Pump Mfrs., Chicago; "Drilling With Air" by E. L. Alexander, Chief Engineer, Geo. E. Failing Supply Co., Enid, Okla.; "Development and Application of Submersible Pumps" by Howard Worthington and Joe Carle, Reda Pump Co., Bartlesville, Okla.; "Cost Analysis for the Contractors" by Norm Ovrum, Secretary, Minnesota Well Drillers Assoc., Minneapolis, Minn.; "Sprinkler Irrigation and the Well Contractor" by Jack Livingston, Denver, Colo.; "Practical Application of Pump Tests" by W. F. Guyton,

E. J. McCarthy

Edwin J. McCarthy, 62, retired president of the McCarthy Well Co. of St. Paul, Minn., died Sept. 8 after a long illness. He lived at 2359 W. Lake of the Isles boulevard and at White Bear Lake.

He was president of the well firm from 1933 to his retirement in 1947. The company was founded by his grandfather in 1860.

Mr. McCarthy was an authority on geological formations in the Upper Midwest and introduced a number of new techniques in drilling.

He was an enthusiastic sportsman and hunter.

He was born in Minneapolis and attended public schools and University of Minnesota.

He is survived by his wife, Hazel; a son, J. Dan, Minneapolis; two daughters, Helen L., Minneapolis, and Mrs. John G. Ordway, Jr., Dellwood, White Bear Lake; a brother, J. Fred McCarthy, St. Paul, and two grandchildren.

White, Guyton and Barnes, Consulting Groundwater Hydrologists, Austin, Tex.; "Ground Water Exploration" by Carl A. Bays, C. A. Bays and Associates, Consulting Geologists, Urbana, Ill.; and "Insurance for the Well Contractors" a forum to be conducted by James L. Davis; Wilcox and Davis, Champaign, Ill.

A "Mississippi Night" will be held by the Mississippi Assoc., on the night preceding the convention, for early arrivals. The annual meeting of the NWWA is planned for Friday, Nov. 21, and the annual banquet will be held that evening.

A number of activities of a social nature are also being planned. There will be boats available for deep sea fishing trips, a get acquainted party, luncheons, dancing, sight seeing trips and of course the annual banquet with entertainment and dancing afterward.

To help make the trip for attendance at the convention worth-while it is urged that the ladies be brought along. The trip can be extended to include vacation sight-seeing. Ladies too, are scheduled for social events. There will be fishing trips, card parties, sightseeing trips and a fashion show for their entertainment.

According to the NWWA Newsletter the convention is open to nonmembers as well as to association members. Reservations for rooms are to be made directly to the Buena Vista Hotel.

State Associations Plan Annual Meetings

Washington-Oregon

The joint meeting of the Washington State Well Drillers Assoc., Inc., and the Oregon Drilling Assoc., Inc., will be held Nov. 14-15 at the Multnomah Hotel in Portland, Ore.

Business meetings are to be held separately for each association but the banquet, entertainment and other activities will be jointly attended.

Virginia

Nov. 14-15 are the dates set for the annual meeting of the Virginia Water Well Drillers Assoc., Inc., at the Virginian Hotel, Lynchburg.

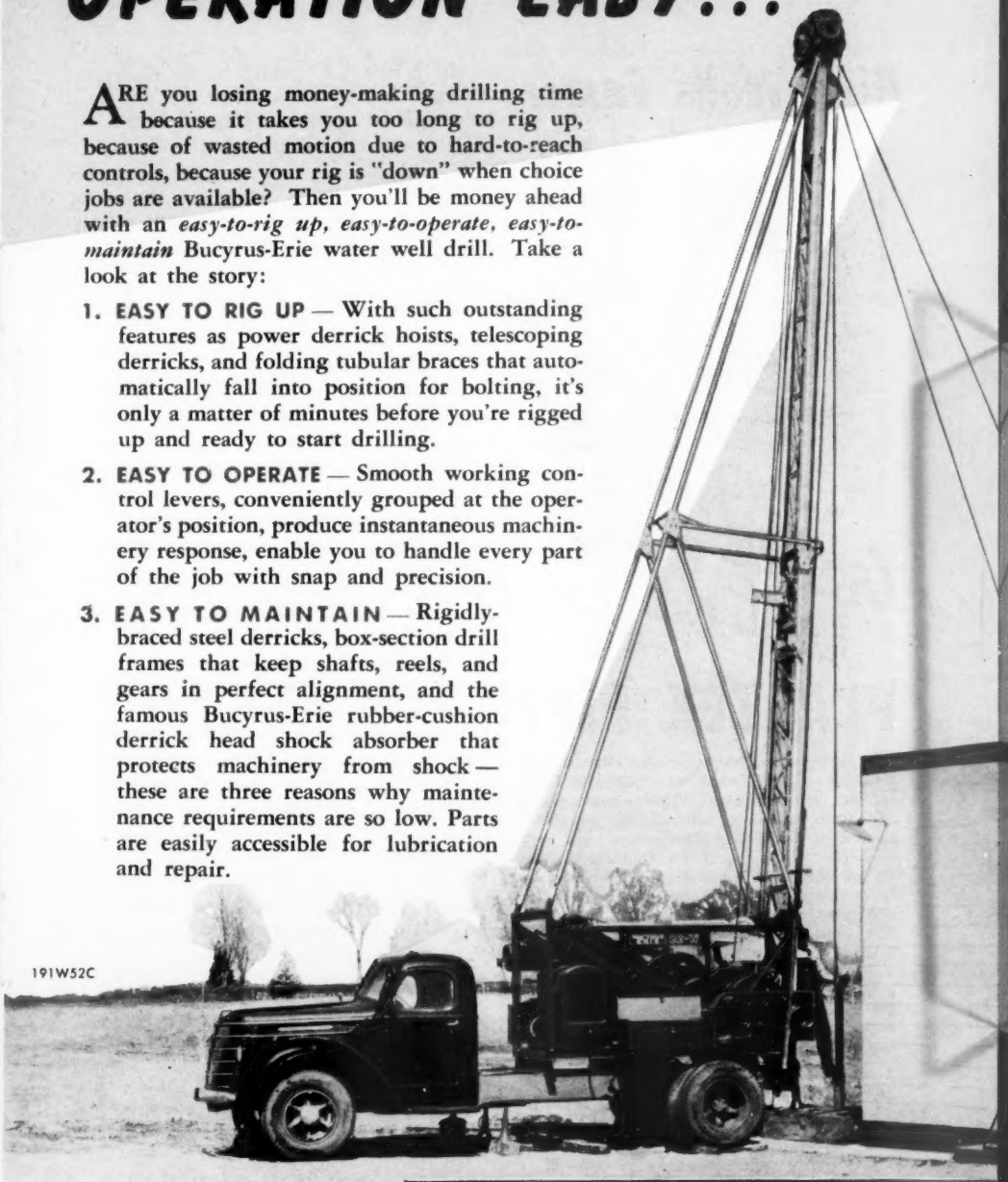
Mississippi

The annual meeting of the Mississippi Water Well Contractors Assoc., Inc., is being held at Biloxi Nov. 18, the day preceding the start

'OPERATION EASY...'

ARE you losing money-making drilling time because it takes you too long to rig up, because of wasted motion due to hard-to-reach controls, because your rig is "down" when choice jobs are available? Then you'll be money ahead with an *easy-to-rig up, easy-to-operate, easy-to-maintain* Bucyrus-Erie water well drill. Take a look at the story:

1. **EASY TO RIG UP** — With such outstanding features as power derrick hoists, telescoping derricks, and folding tubular braces that automatically fall into position for bolting, it's only a matter of minutes before you're rigged up and ready to start drilling.
2. **EASY TO OPERATE** — Smooth working control levers, conveniently grouped at the operator's position, produce instantaneous machinery response, enable you to handle every part of the job with snap and precision.
3. **EASY TO MAINTAIN** — Rigidly-braced steel derricks, box-section drill frames that keep shafts, reels, and gears in perfect alignment, and the famous Bucyrus-Erie rubber-cushion derrick head shock absorber that protects machinery from shock — these are three reasons why maintenance requirements are so low. Parts are easily accessible for lubrication and repair.



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SOUTH MILWAUKEE
WISCONSIN

Simplicity of operation in every phase of a drilling job is but one of the advantages of Bucyrus-Erie water well drills. The superior design of Bucyrus-Erie water well drills . . . resulting from more than 80 years of experience in building cable tool drilling machines . . . assures you of years of top performance. If you're not using a Bucyrus-Erie drill, now is the time to investigate. Write today for complete information on the 20-W, 22-W or 24-L models.

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Cut piping time on wells and distribution lines to a matter of minutes with light weight, easy-to-install Plastex pipe. Made of tough, durable, all virgin, non-toxic plastic it positively eliminates rust, rot, corrosion and scale. Long, flexible lengths up to 400 feet eliminate joints and conform to irregular contours above or below the surface.

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PLASTEX PIPE
CORROSION PROOF

of the NWWA Convention. As hosts to the National Exposition, the evening will be spent greeting early arrivals to the National Convention.

Kansas

Plans for the annual meeting of the Kansas Water Well Drillers' Assoc. to be held Dec. 12 and 13 are nearly completed. The convention will be held at the University of Kansas in Lindley Hall.

Displays will be held in the U. S. Geological Survey offices in Lindley Hall and in the parking area at the rear of the building.

Tentatively the program wi'l follow this schedule.

Hydraulics applied to water systems, Frank Perkins, Deming Pump Co.; CMP Regulations, T. G. Phares, Commerce Department; Specifications for letting bids for municipal wells, Round table discussion; The application of geology in drilling water wells, Lee Hendee, Driller at Muncie, Kan.; Geology of Douglas County, Howard G. O'Connor, State Geological Survey; Gravel packing of water wells, W. D. Wilson, Driller at Lawrence; and Geologic cross section of Kansas, C. K. Bayne, State Geological Survey.

The regular dinner, with a speaker, and a business meeting will also be part of the program.

Salt Water Moves Inland In Orange County, Calif.

Because of the continued lowering of ground-water levels along the Orange County coast, (Calif), saline contamination has progressed inland locally from mid 1950 to mid-1951, according to a Geological Survey report just released.

The report was prepared by A. A. Garrett in cooperation with the Orange County Water District and the

Orange County Control District. It deals with saline contamination along the coast from Seal Beach southeast to Newport Mesa. Of the several hydrologic units described, contamination is most critical in two: In Alamitos Gap, where at least 600 acres are now underlain by saline water, and in Santa Ana Gap, where 200 acres have been underrun since last year by saline water originating from the ocean.

Conductivity traverses made in two of four observation wells in Santa Ana Gap yield strong evidence that contamination is more intense in the lower part than in the upper part of the Talbert water-bearing zone.

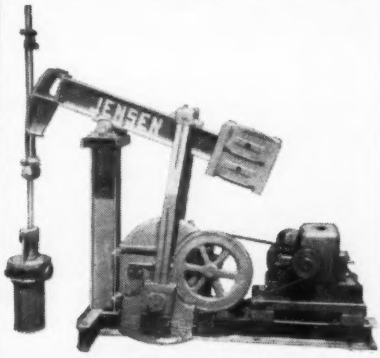
Field data obtained from a series of pumping tests in Santa Ana Gap indicate that the permeability of the Talbert zone locally is within the range of 3,500 to 4,000 gpd per sq. ft.

Nevada Ground-Water Reservoir Recharged By Irrigation Seepage

The interrelationship of ground water and surface water in a desert valley is discussed in a Geological Survey report recently released.

Smith Valley, in Lyon and Douglas Counties of western Nevada, is a fairly typical valley of the Basin and Range province, except that it has a through-flowing stream, the West Walker River, one of the larger streams draining the east flank of the Sierra Nevada. The average annual flow of the West Walker River where it enters Smith Valley, at Hoye Canyon, is 180,000 acre-feet. Of this average flow about 66,000 acre-feet a year is diverted for irrigation within the valley. The water so diverted has a substantial effect on the ground-

(Continued on page 22)



Pump Handle Pete Says:

JENSEN PUMPING UNITS make friends!

Heard a preacher once say that the only way to have a friend is to be one.

And JENSEN WATER WELL PUMPING UNITS have been doing just that for years. Making friends by the thousands, 'cause they have all the qualities of a good friend.

RELIABLE — always ready to work when you need 'em. TRUSTWORTHY — with built-in quality, proven design and honest prices.

JENSEN users are our best salesmen. A fact that explains why more and more water well drillers are recommending and installing ever increasing numbers of JENSEN PUMPING UNITS.

A card or letter from you or your favorite supply store addressed to 1016 Fourteenth St., Coffeyville will bring our new catalog and prices.

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Coffeyville, Kansas, U.S.A.

the driller and the *LAW*

Articles appearing under this heading are published for their general interest, and to remind readers that it is not safe to overlook the legal aspects of a water well drilling business. The articles are not intended to take the place of specific advice of counsel. For such advice, readers are urged to consult a local attorney.

Loses pay for incomplete performance

AN Idaho driller agreed to drill a well at an industrial plant for $12 a foot, payable on completion of a hole "sufficiently straight to accommodate a 10-in. pump at a sufficient depth below the water level to insure a continuous flow of water."

As drilling progressed to the 203-ft. depth—where the contractor quit, withdrew his equipment and demanded payment — dispute was waged as to whether or not the well was sufficiently straight for a pump to work in it. The pump was to be provided by the owner and the written contract did not specify what type would be used.

When the owner refused to pay for the work done and the driller sued to enforce a statutory lien, the owner counter-claimed for $1,000 advanced to the driller when the contract was made. (Williams v. Idaho Potato Starch, 245, P.A.C., 2d, 1045) The trial judge denied the lien and allowed the owner judgment for $1,000, plus interest from the date when the money was advanced. The driller appealed to the Idaho Supreme Court and these principal questions were presented for decision:

(1) The contract being silent as to what type of pump should be used by the owner, could the understanding of the parties on that point be ascertained by considering testimony of both parties?

The court decided that it could since the written contract did not show what type of pump was to be installed. Conversations between the parties could be considered to show what the mutual understanding was. This bore on the question whether the contract requirement that the well accommodate a 10-in. pump contemplated use of an oil-lubricated pump or a water-lubricated pump. The driller testified that it was understood that an oil-lubricated pump was to be used, and the owner claimed that it was to be a water-lubricated pump. The trial court accepted the opinion of an expert witness who said only two types of pumps would be practical for this job. They were an oil lubricated pump and a submersible, turbine type. The higher court refused to intefere on that point. This phase of the case involved rules of law to the effect that oral evidence can be introduced to explain the ambiguous parts of a contract. (Here the contract said 10-in. pump but there were two or more types practicable.) Extrinsic facts can be used in evidence to explain which type was intended to be used.

(2) Could the owner prove that the drilling rig was idle for a con-

siderable time, as tending to show that drilling was not carried on with reasonable promptness?

Yes, proof that the contractor's rig was unduly idle on the job tended to show whether or not the drilling proceeded with reasonable promptness. The rule is: When no time for performance is set in a contract, the law implies a reasonable time. Evidence can be introduced toward this matter of reasonable length of time.

(3) The owner having let a contract to another driller to drill a new well in place of the one abandoned by the first driller, was it a material point in the case that the specifications of the new contract differed from those in the first agreement?

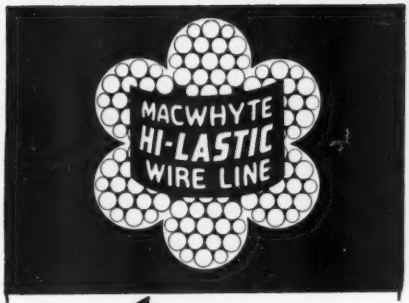
The court said no. When an owner relets a drilling contract, the terms of that contract cannot alter the effect of the terms of the contract which it supersedes.

(4) Did the evidence justify a conclusion that the driller failed to comply with the requirements that the well be straight?

The Supreme Court detailed considerable evidence tending to show that the driller did not comply with his agreement as to drilling the hole straight.

(5) Since there was a bona fide dispute as to the rights of the parties until judgment was awarded the owner for return of the $1,000 advanced, did the trial judge err in allowing the owner interest on that amount, dating from the day it was

(Continued on page 26)



For sharper, harder blows!

The greater elasticity of Macwhyte Hi-Lastic allows tools to strike sharper, more powerful blows . . . for faster, smoother drilling. It keeps the bit turning better . . . reduces tendency for the hole to get out of round and for the bit to channel. Like all Macwhyte Wire Lines, Macwhyte "Hi-Lastic" is internally lubricated.

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It lists and describes Macwhyte Drilling and Sand Lines.

Get the correct line for your equipment from any Macwhyte distributor or mill depot or write to:

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Ft. Worth 1, P. O. Box 605
Portland 9, 1603 N.W. 14th Avenue
Seattle 4, 87 Holgate Street
San Francisco 7, 141 King Street
Los Angeles 21, 2035 Sacramento St. 1013

News . . .

(Continued from page 19)

water regimen of the valley as seepage of irrigation water is believed to represent the major amount of ground-water recharge.

Ground-water discharge probably exceeds 25,000 acre-feet a year, of which an estimated 18,000 acre-feet flows into the West Walker River. Although it is possible to salvage a large part of the ground-water discharge it may not be practical to do so for legal or other reasons.

Study Rhode Island Water Supply

Adoption of a program of long-term planning for the development and use of Rhode Island water resources was recommended in a report submitted to Governor Roberts recently by the Rhode island Water Resources Commission and its engineering consultants, Charles A. Maguire and Associates.

In the most comprehensive report of its kind ever prepared in the state, the engineers and the commission outlined for every Rhode Island city and town exactly what is available for water supply and what has to be done in the future to develop and assure continued good supply.

The commission, created by the 1951 State Legislature to survey the state's water resources, called upon the state's 39 cities and towns to look to their own supplies carefully and thoughtfully, working from the hundreds of pages of factual information compiled by the engineers.

In advocating adoption by the state of a program of long term planning in the use of water resources, the commission said such a program would be entrusted to an existing board or commission or to a new agency created for the job. Its goal would be a program worked out in cooperation with the Rhode Island Development Council, committee of the State Legislature, and state departments for best use of the state's water resources in the ground, on the surface, or tidal.

To meet threatened shortages in specific localities, the commission urged cities and towns to draft their own plans with help from the state.

Included in the commission's basic recommendations are the following points:

(1) Funds should be appropriated to permit continuation of the study of underground water resources and to expand the investigation to include tests for quantity and quality of water from these sources in promising areas.

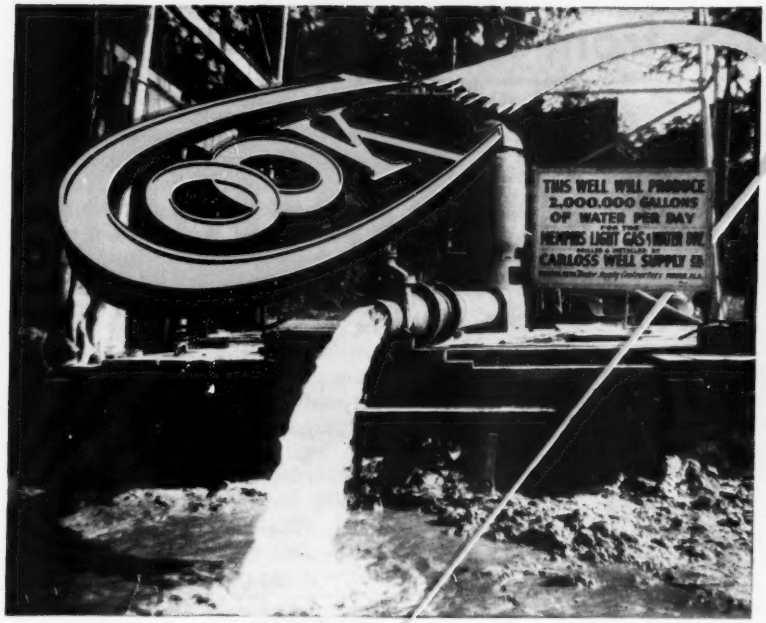
(2) All public and private water supply departments should be directed if possible and at least encouraged to keep reasonably accurate records to determine probable safe yields of the sources of supply, the size of the population served and daily consumption.

(3) Consideration should be given where economically feasible to the establishment of new water districts or authorities for pooling of supplies and distribution but only where engineering studies establish the economy of such a move.

(4) Encouragement should be given to the extension of water services into suburban areas where economically feasible when fire insurance ratings may be radically improved and where the State Health Department finds extended service a necessity.

The commission adopted this platform of guiding policy:

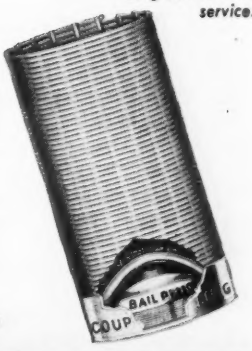
No water supply development should be recommended without considering alternate projects, carefully adjusting rates and allocating expenses to those who benefit.



PAYS OFF IN *Millions*

Two million gallons a day! That's the water-delivery story of this Cook 12" Wire Wound, 100' Well Strainer . . . in service for the Memphis Light, Gas & Water Division. Outstanding performance? No . . . just *typical* of the dependable water-delivery you can expect from well strainers designed and built by COOK. Install Cook Well Strainers in your wells . . . and count on years of trouble-free service. Write for complete details and specifications, today.

Cook Well Strainers provide the most direct passage from the sand stratum into the well. Available in Red Brass, American Everdur Brass, Armco Iron or Stainless Steel, in as many different size slots as required. Eight to 24 hours delivery often possible. Telephone Lawrenceburg 909 for this service.



Here are the facts about this well:

TYPE: Gravel Wall
SIZE: 18"
DEPTH: 460'
SCREEN: Cook 12" Wire Wound, 100'
PUMP: 100 H.P. Turbine
CAPACITY: 2000 gals. per minute
TESTED 65 GALS. PER FOOT DRAWDOWN

COOK
WELL STRAINER CO.
LAWRENCEBURG • INDIANA

"World's Leading Name in Well Strainers Since 1879"

BITS from the wit sharpener

Breathes there a man with soul so dead who ne'ver hath turned his head and said:

Hmmmmm. Not bad.

"Did you lose a half-dollar, Mister?" asked the small boy.

"Why yes, I believe I did," the man answered as he put his hand into his trouser pocket. "Have you found it?"

"Oh no, I'm just finding out how many were lost today. Yours is the 34th one so far."

"So you met your wife at a dance. Wasn't that romantic?"

"No. Embarrassing. I thought she was at home taking care of the kids."

A man rushed into a barbershop, addressed the barber at the first chair, "How many ahead of me?"

"Two haircuts," responded the barber. The man rushed out but didn't come back.

The next Saturday the same thing was repeated.

The third Saturday the fellow dashed in with his inquiry. "Three ahead of you!" replied the barber, "say . . . " But the man was gone.

"Follow that fellow and find out who he is," the barber instructed the shine boy. "This is the third Saturday he has run in here, asked how many ahead of him, then run out and not come back."

A few minutes later the shine boy returned.

"Boss," he said, "Ah doan know who that feller is, but ah sho know where he went!"

"Where?" asked the barber.

"To youah house, suh!"

The courtroom was crowded as the judge finished his lecture to the defendant in a divorce action.

"So I've decided to give your wife $40 per month," were his last words.

"That's fine, judge," the husband said as his face lit up with a big smile. "I'll try to slip her a couple of bucks now and then myself."

A wolf, sitting in a fashionable restaurant, snapped to attention when an attractive young lady passed by. He tried a standard pass. "Excuse me, but surely you're not dining alone?" and got nothing in return but a frigid glance. His vanity stung, he remarked sarcastically, "I'm sorry I thought you were my mother."

"I couldn't be," came the icy retort, "I'm married."

A rich uncle died and made the following bequest in his will.

"I leave to my beloved nephew all of the money he owes me."

Patient: "Doctor, I blush so easily that it worries me. When I sit down and think, I blush. How can I stop it?"

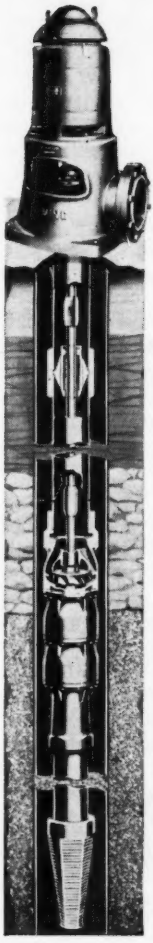
Psychologist: "The best way, young lady, is to think about something different."

The daughter was concerned about the amount of money her boy friend was spending on her each time he took her out.

"Mother," she said, "what is the best way to stop Tom from spending too much money on me?"

"Marry him!"

Deming Pumps



● The three types of Deming Pumps illustrated offer well drillers a wide range of selection to meet industrial and agricultural needs.

Fig. 4700 (at left) Deming Deep Well Turbine Pumps. Built for wells 4 to 16 inches or larger in a complete range of capacities from 15 to 3000 gallons per minute.

Fig. 4902 (at right) Deming Jet Pumps and Water Systems. Capacities from 200 to 4500 gallons per hour.

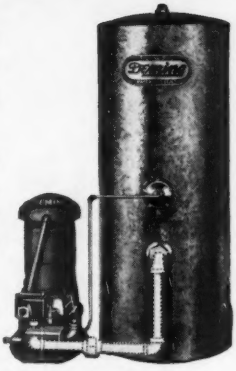


Fig. 4701 (below) Deming "Minuturb" Deep Well Pumps and Water Systems for 4 inch or larger wells. Capacities 900 to 4800 gallons per hour.

For complete information on these popular Deming Pumps and Water Systems, write . . .

THE DEMING COMPANY

512 Broadway, Salem, Ohio

THE DEMING "MINUTURB" Deep Well Water System

Driller Loses Pay . . .

(Continued from page 21)

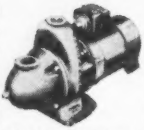
advanced instead of from the date of the judgment?

The Supreme Court's decision was that the trial judge erred in allowing interest from the date when the $1,000 was advanced to the driller against payments to fall due to him if he completed the well according to contract. Interest should have run from the later date when it was decided by the court that the owner was entitled to a refund. This decision is in line with the recognized rules of law in Idaho that interest on a debt runs from the date when the debt is due, where there is no ground for disputing the indebtedness. But where the damages are not liquidated damages. (i.e., specified in the contract or by agreement of the parties, and they cannot be determined by ready market values, etc.) the interest in the amount of such damages will only run from the date of court judgment when such amount becomes specific and ascertainable. *Arthur L. H. Street*

A *Profitable* Line

AURORA-JET WATER SYSTEMS

It's what you have been looking for. The most modern of the ejector water systems — quick conversion from shallow to deep well. For EVERY home, farm, estate and institution water supply requirement. PACKAGED INVENTORY promotes accuracy and prompt service and lessens inventory investment. Backed by AURORA — means prestige for you; economy and satisfaction for your customers.



SHALLOW WELL

DEEP WELL

SIZES UP TO 4,500 G.P.H.

Write for Description

AURORA Always PUMPS — AURORA PUMP COMPANY

58 Loucks St., Aurora, Illinois

Florida's Water . . .

(Continued from page 11)

private use, such as for irrigating citrus groves and vegetable farms, for supplying water to cattle ranches and for many industrial purposes.

Recently the cattle country has been spreading from central and southern Florida to northern sections of the State, and, following recommendations of the Florida State Cattlemen's Assoc., these new cattle ranches in northern counties have been sinking wells rather than to depend on sometimes polluted surface streams. Also, in the older cattle country near Lake Okeechobee ranchers have brought in wells rather than use ditch water, which is less pure and sometimes disappears entirely in dry seasons. There are about 300 well drillers, large and small contractors, in the state.

During the past five years there have been upward of 150 public water supply projects in the State, according to records of the State Board of Health. Some of these have been of major size. Jacksonville has been working on a $5,000,000 program. Orlando has recently doubled its water treatment facilities. Although it has more than 40 lakes within its city limits, it draws its major supply from wells, using some of the lakes for reservoirs, but the water thus stored requires extensive treatment before use. Tampa, third largest city, draws its water supply from spring-fed Hillsborough River, but

WELL, WELL, WELL

DO 3 WELLS IN HALF THE TIME OF ONE WITH

Yardley Plastic Pipe
NATIONALLY ADVERTISED AND DISTRIBUTED

Why should *two* men sweat and slave an 8-hour day piping a jet well when *one* man can do it in 90 minutes? Such fast installations are going on every day all over the country with Yardley Plastic Pipe.

It's because YPP weighs ⅛ as much as steel, comes in long lengths, requires fewer fittings. And how it lasts! YPP is sure to out-serve regular pipe *many times over*. It won't ROT, RUST OR CORRODE. That's GUARANTEED.

Want proof? Ask us or anyone who has installed it. Better still, *try it yourself and see*.

YPP IS NOT A SUBSTITUTE

— it's a new and better pipe for all wells and cold-water systems.

Write Dept. "D"

YARDLEY PLASTICS CO.
142 PARSONS AVE. • COLUMBUS 15, OHIO

has to employ extensive treatment because of discoloration by organic matter at certain seasons. Chemical analysis made by official agencies have shown that well water used for public supply is usually more potable than surface water, without requiring as expensive treatment.

The City of Miami, which supplies water to Miami Beach and to several adjacent towns in Dade County, has one of the most serious water problems in Florida. Having no surface water of sufficient volume or potability to supply even a portion of its needs, it is wholly dependent on wells. Some of the earlier wells were sunk too close to the ocean, with resultant salt water intrusion when the water table dropped low during dry seasons. But the question of adequate supply for a widely fluctuating consumption has also been a problem to contend with. During February and March, the peak of the winter tourist season, when there is also a heavy lawn sprinkling load owing to almost total absence of rain, the daily consumption rises to a range of 70 to 75 million gallons a day against a daily average of 48 million gallons during the remainder of the year. Moreover, the use of water has doubled in 10 years owing to rapidly growing population, both permanent and transient.

WATER LEVEL INDICATOR

THE NEW MASTER WL FEATURING:

- SMALL, ⅜" D., ELECTRODE.
- TWO CONDUCTOR CABLE, NO CASING OR OUTSIDE CONNECTIONS NEEDED.
- METAL TAG CABLE CALIBRATION.
- HANDY REEL TYPE SPOOL.

250 ft. WL $37.50 f.o.b. Palo Alto*
500 ft. WL $47.50 f.o.b. Palo Alto*

*Includes one Extra Electrode
Additional Electrodes $1.00 each.

FISHER RESEARCH LAB., Inc.
PALO ALTO CALIF.

Well Water Preferred

To meet the present and future requirements, the Water and Sewers Department took bids in Nov. 1951, on a nine million dollar plant to be built nine miles west of the city, away from danger of salt water intrusion, where eight 18-in. wells 100-ft. deep, each with five million gallons a day capacity, will be drilled. A new filtration plant will also be built. A 48-in. water main has already been laid from the new field to the distributing lines.

An oddity of the Florida water supply situation is that the abundant and voluminous springs in the State are scarcely used for public water supply. For example, the city of Ocala, situated between the famous Silver Springs and Rainbow Springs, utilizes well water, although either of these springs produces a water flow sufficient to supply a city of three million population. And, of the more than 100 springs in the state, 17 are described by the U. S. Geological Survey as being of "First magnitude" meaning that they are among the world's largest. Yet well water is preferred by most municipalities and other water users, chiefly because it is more economical to sink wells than to pipe water overland and because well water requires less treatment to pass health standards.

BARGAIN counter

All advertising in this section is payable in advance. Enclose your check or money order with copy. Rate· 60c per line. Minimum charge $2.40. No discounts; no commissions. Count your own copy to avoid delay. The average line contains 28 characters (20 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number if blind advertisement is desired. Closing date — 10th of preceding month. Example — January issue closes December 10th. Be sure to address separate inquiries to each advertiser by using the correct box numbers. Mail Box inquiries care of THE DRILLER, South Milwaukee, Wis.

DRILLS FOR SALE

71 Speed Star, mounted, A-1 condition, complete with tools, dog house on trailer. Kenneth D. Tyson, Box 121, Wood County, Rudolph, Ohio.

Custom-built all steel wire line drill. Mounted on two-ton 1938 White truck. Powered by U2 International engine with power take-off clutch. 32' derrick, 350' to 400' capacity machine. Located in Indiana. Ready to drill. Priced to sell at $650. Box 486

No. 35 Armstrong, trailer mounted. Running condition. With cables. Cheap. Box 484

No. 240 Star mounted on 1942 1½-ton Ford truck. Both in A-1 condition. Will sell with or without 4" and 5¾" tools and wire line. Perl A. Litwiler, R. D. 2, Conneaut Lake, Pennsylvania.

Large size Shur-Hit spudder, Model AA in good condition, mounted on a two-ton 1941 International truck. With or without tools. Phone 1°J Elora, Ontario. Charles Hill, Elora, Ontario.

DRILLS FOR SALE

Bucyrus-Erie 21-W mounted on 1941 Chev. 1½-ton truck, drill line, sand line, tools for 5¾" hole, tool guide, blower, power derrick hoist, acetylene welder and some fishing tools. Price $2950. Located in Arkansas. Write 203 Marlboro St., Aiken, South Carolina.

Bucyrus-Erie 22-W drilling machine mounted on 1941 Ford truck. Machine is equipped with derrick hoist, spooling device, casing reel, etc. Machine and truck in good condition, ready to go. Hoeg & Ames, Lincoln, Iowa. Phone 23F4.

Rebuilt Keystone machine, four-wheel pneumatic tired trailer mounting and powered with International U-1 engine with V-belt drive. Complete with 350 feet of 1¾" new manila drilling cable. 300' of ¾" new manila sand line and a complete string of 4" tools with 1⅛ x 2¼-8 API joints. Located Illinois. Price $1000. Box 479.

No. 50 Wichita with 50' mast made of steel, Monarch motor, dog house tools from 12½ down to 5". Ford winch truck. FOB Oklahoma, $4000. Also shop-built machine built on order of 35 Armstrong. Mounted on '42 White truck, 6 & 8" tools. $1000 or $600 without truck. The small machine has a wood frame but is solid and in good condition. R. A. Holland, Rt. 1, Barnsdall, Oklahoma.

The Bargain Counter
Can Help You
in Buying and Selling
Used Rigs

Bucyrus-Erie 22-W, semi-trailer mounting, Buda 4 cyl. gasoline engine. 36' telescoping derrick with power hoist. Some 6" drilling tools included. Machine in excellent condition and ready to be operated. Price—$2850. Including tools and cables. Berner Well Drilling Company, 3535 N. 124th Street, Milwaukee, Wis. Telephone HIlltop 5-0853.

DRILLS FOR SALE

Bucyrus-Erie 22-W mounted on 2-ton Dodge 1937 truck, all in excellent condition and good rubber. With tools or without. LeRoy Ames, Box 51, Humboldt, Iowa.

No. 1½ all-steel Loomis Clipper, semi-trailer mounted with dual pneumatic rear wheels and trailer bracket. Powered by Chevrolet engine, just overhauled, with 3-speed transmission. 40-ft. all-steel telescoping derrick with shock absorber at top, tool guide, and pipe braces. Casing reel. Machine in good operation condition. Price $1000. Price with 4-in. tools and cable $1200. Write or phone Charles J. Zuber & Son, 2315 Wayne Trace, Fort Wayne, Ind. Phone Anthony 2403.

Bucyrus-Erie 22-W drill mounted on 10-wheel 1946 Ford truck; complete with all drilling tools for 6" wells. All equipment in excellent working condition. Machine available for immediate purchase. Apply to Eino Heine, New Ipswich Road, Ashby, Massachusetts. Telephone Ashby 13 Ring 13.

#10 Ideco drilling machine, two years old. Motor and machine in A-1 condition. Mounted on 1942 GMC 1½-ton truck with new 1946 motor. Well machine has 36' derrick with power hoist. Also 500' of ⅝" cable and 500' of ⅜" sandline. Will sell reasonably for quick sale. Contact Howard White, 1131 Cornwall St., Waterloo, Iowa.

Keystone spudder, Model 150, Serial number 1504911, less tools and lines. Unit purchased new in 1949, mounted on GMC 6 x 6 truck with low range gears. Both spudder and truck in A-1 condition and ready for immediate delivery. Located at Burgettstown, Rt. 1, Pennsylvania. Price $8500 cash. Phone Burgettstown, Pa. 8004. Wright Brothers & Hughes.

(Continued on page 30)

DRILLS FOR SALE

(Continued from page 29)

Oak frame spudder, winch derrick hoist, folding steel mast new (200' x 5/8" drill line and 3/4" sand line). Machine mounted on 1948 Ford V-8, 1½-ton truck. Rig powered by 3-5 H.P. International Harvester, single cyl. engine. Very economical. 6"-8" tools. Rig manufactured by Williams Bros., Ithaca, N. Y. Will sell rig, truck and tools for $1200 cash. H. H. Harris, Rt. 3, North 5th St., Paris, Ark.

All steel jetting machine, powered by International 3½ HP engine and equipped with pneumatic tired four-wheel trailer mounting. 22' all steel derrick, and equipped with cat-heads and 210# driving maul. A real buy at $350. Phone or write Sterling Fry, 603 Elm St., Phone 573R, Valparaiso, Indiana.

Bucyrus-Erie 24-L spudder with 48' derrick, casing tackle strut, stem guide, rubber mounted sheaves, blower, gas, gasoline combination carburetor and trailer mounted, with or without tools. Rig located in eastern West Virginia.
Box 482

No. 45 Armstrong all steel machine, semi-mounted, dual rubber wheels on rear, 4-cylinder LeRoi motor. Will sell without tools and cable for approximately $1000. For sale by Gilbert Pross, Fessenden, North Dakota.

Keystone 50 drill without truck or tools. Machine in good working order and may be purchased immediately. Apply to Louis E. Allyn and Son, East Canaan, Connecticut. Telephone 85600.

MISC. FOR SALE

Worthington deep well turbine pump designed for 500 GPM at 460 ft. TNH, with 440 ft. of 8" by 2⅞" water lubricated column, with a 100 HP 440 volt 3 phase 60 cycle 1750 RPM hollowshaft US Motor. Pump used less than two months. Priced to sell. City of Lancaster, Lancaster, Wis.

Well casing, 5⅝", 6", and 6¼". New and used. Tom Scheuren, 933 Fern Ave., Reading, Pa., Phone 41287.

Drive pipe, Spang drilling tools, Keystone drilling tools, Larkin drive shoes and well seals, Wickwire drilling cable, drive couplings, plastic and copper pipe. Water pumps. Machine shop work. Fishing tools for rent. The only complete well drilling supply house in Northern New York. J. G. Piscitelli & Son, Lower Maple St., Hudson Falls, N. Y. Tel. 4-5806.

Pipe for Sale

3" and 4" standard black pipe threads and couplings. Leslie Olson, Mora, Minnesota. Phone 294-W.

Bucyrus-Erie jetting pump. Capacity 50 gmp 300 lbs. pressure. Mounted on steel base of 8" I-beams 7' long 2' wide. Wt. 1400 lbs. Power is transmitted from engine through a jackshaft pinion of 16 teeth meshing with large cut gear of 81 teeth on pump crankshaft. Ratio 5 to 1. Other end of jackshaft fitted with RC100 chain sprocket having 20 teeth for engine drive. Pump new in 1948 and taken from 22-W drill and never used. Priced at $350 f.o.b. Los Angeles.
Box 476

WANTED

Wanted Rotary
PORTABLE WATER WELL RIGS

Light, medium and heavy; send full descriptions, pictures if possible, lowest cash price to CARLOSS WELL SUPPLY COMPANY, 111 Concord, Memphis, Tenn.

HELP WANTED

Man thoroughly experienced to operate #71 Star. Combination rotary and cable tool water well drill. Must be able to handle job from start to finish. Gus Hauser, Newfield, N. J. Phone Vineland 9-7854.

Man for hard rock drilling. Good wages. Transportation furnished to and from work. Year around job. See, call or write, John H. Harkleroad, Leesburg, Virginia.

Water well driller for southwest Michigan to operate Bucyrus-Erie #21 and similar equipment. Salary or commission.
Box 485

Wanted: Because of ill health, I need a man for year-around work. Shop work and water well drilling. Married man preferred. Non-drinker. Leo Bredesen, Greenwood, Wis.

POSITIONS WANTED

Driller from India is interested in new position. Willing to locate any place in the world. Wants steady job. Ten years water well drilling experience. Has held responsible post.
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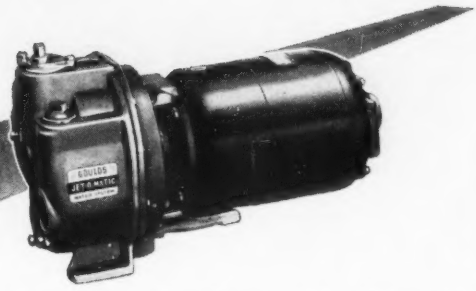

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